

3



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.         | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------|------------------|
| 09/847,253  | 05/02/2001  | Neil C. Singer       | 0162095-0004b               | 5037             |
| 24280   | 7590        | 03/08/2006           | EXAMINER<br>PHAM, THIERRY L |                  |
| CHOATE, HALL & STEWART LLP<br>TWO INTERNATIONAL PLACE<br>BOSTON, MA 02110 |             |                      | ART UNIT<br>2624            |                  |
| PAPER NUMBER  |             |                      |                             |                  |

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 09/847,253             | SINGER ET AL.       |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Thierry L. Pham        | 2624                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

- This action is responsive to the following communication: an Amendment filed on 1/26/06.
- Claims 1-15, and 17-20 are pending; claim 16 has been canceled.
- Response to objection of drawing has been acknowledged and entered.
- Response to objection of claim (claim 8) for informalities has been acknowledged and entered.
- Response to objection of specification (abstract) has been acknowledged and entered.
- Response to duplication of claim (claim 16) has been acknowledged and entered.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-14, 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by McConnell et al (US 6011373).

Regarding claim 1, McConnell discloses a computer peripheral (inkjet printer, col. 22, lines 34-37) comprising:

- at least one element (i.e. stepper motor, col. 22, lines 34-42) supported for motion;
- an electromechanical mechanism (stepper motor for driving the inkjet cartridge back and forth, col. 22, lines 34-42) for moving the moveable element; and
- circuitry (control system 22 of fig. 2 for inputting a command to drive the physical system, i.e., inkjet printer, to eliminate and/or reduce vibration, figs. 3-13, col. 1, lines 10-22 and col. 22, lines 34-58) for providing a shaped input (shaped input, figs. 3-4) to the electromechanical mechanism (i.e. output system 26 such as inkjet printer, col. 22, lines 34-42) to move the movable element (inherently, inkjet printer as taught by McConnell includes plurality of moveable elements such as ink cartridge, print head, and

Art Unit: 2624

etc) along a desired trajectory (e.g. level of robustness, col. 11, lines 55-65 and col. 12, lines 20-24).

Regarding claim 2, McConnell further discloses the peripheral of claim 1 in which the desired trajectory results in maximum speed (output system speed, col. 1, lines 58-62).

Regarding claims 3-4, McConnell further discloses the peripheral of claim 1 wherein the desired trajectory results in quiet operation and vibration-reduced (reduce noise and vibration, abstract, figs. 3-4).

Regarding claim 5, McConnell further discloses the peripheral of claim 1 wherein the desired trajectory reduces unwanted frequencies (reduce and/or remove unwanted frequency, fig. 47, col. 22, lines 58-67 to col. 23, lines 1-8).

Regarding claim 6, McConnell further discloses the peripheral of claim 1 further including a sensor (measured sound of the printer, col. 22, lines 50-51) responsive to the dynamic response of the peripheral.

Regarding claim 7, McConnell further discloses the peripheral of claim 6 wherein the sensor is an accelerometer (measured acceleration frequency, fig. 4).

Regarding claim 8, McConnell further discloses the peripheral of claim 6 wherein the sensory is a microphone (measured sound of the printer, col. 22, lines 50-51).

Regarding claim 9, McConnell further discloses the peripheral of claim 6 wherein an output from the sensor (output response, figs. 15-47) is used by the circuitry to provide the shaped input (shaped inputs, figs. 11-12 and to determine which input commands provide less noise and vibration).

Regarding claims 10-11, McConnell further discloses the peripheral of claim 1 wherein the peripheral is a printer/scanner (inkjet printer, col. 22, lines 35-37, multifunctional printer including scanner (i.e. copy machine) is widely available and known in the art, and also notes printer is just an example of an physical output system as discussed by McConnell, other physical output system also applied).

Regarding claim 12, McConnell further discloses computer peripheral comprising:

- at least one element (i.e. stepper motor, col. 22, lines 34-42) supported for motion;
- an electromechanical mechanism (stepper motor for driving the inkjet cartridge back and forth, col. 22, lines 34-42) for moving the moveable element;
- circuitry (control system 22 of fig. 2 for inputting a command to drive the physical system, i.e., inkjet printer, to eliminate and/or reduce vibration, figs. 3-13, col. 1, lines 10-22 and col. 22, lines 34-58) for providing a shaped input to the electromechanical mechanism to move the moveable element along a trajectory; and
- a user interface (user interface for selecting an input command, fig. 3-410-12) allowing the user to select a desired trajectory.

Regarding claim 13, McConnell further discloses the computer peripheral of claim 1 wherein the trajectory is quick, quiet, or in between (robustness and noise reduction, abstract, fig. 12).

Regarding claim 14, McConnell further discloses the peripheral of claim 1 wherein the trajectory suppresses unwanted frequencies (suppression methods, abstract, suppress peak frequencies that generates noises, fig. 47).

Regarding claims 17-18, McConnell further discloses the peripheral of claim 12 wherein the peripheral is a printer/scanner (scanner (inkjet printer, col. 22, lines 35-37, multifunctional printer including scanner (i.e. copy machine) is widely available and

Art Unit: 2624

known in the art, and also notes printer is just an example of an physical output system as discussed by McConnell, other physical output system also applied).

Regarding claim 19, McConnell further discloses the peripheral of claim 17 wherein the moveable element is a print head (ink cartridge, col. 22, lines 35-42).

Regarding claim 20, McConnell further discloses the peripheral of claim 17 wherein the moveable element is a paper feeding mechanism (inherently, all printers include a paper mechanism).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over McConnell as described in claim 1 above, and in view of applicant's admission of prior art (page 1, lines 10-22).

Regarding claim 15, McConnell teach a method for calculating an output response via an input command, but fails to explicitly teach and/or suggest using Input Shaping.

Applicant's admission of prior art, teaches the peripheral wherein the desired trajectory is determined using Input Shaping (page 1, lines 10-22).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify McConnell as per teachings of applicant's admission of prior art by calculating an output response (i.e. vibration results) using an Input Shaping methods because of a following reason: (●) to suppress residual vibration (page, 1, lines 10-22); (●) reduces acoustic noise (page 1, lines 10-22); (●) to improve McConnell's system by implementing an additional methods/techniques for reducing vibration/noise.

Therefore, it would have been obvious to combine McConnell with applicant's admitted prior art to obtain the invention as specified in claim 15.

### ***Response to Arguments***

Applicant's arguments filed 1/26/06 have been fully considered but they are not persuasive.

- Regarding claims 1 & 12, the applicants argued the cited prior art of record (US 6011373 to McConnell et al) fails to teach and/or suggest moving the “moveable element along a desired trajectory” and “selecting a desired trajectory” as cited in claims 1 & 12. In response, the examiner first notes to the applicant that nowhere within in claim 1 includes features/limitation for “selecting a desired trajectory”. According to the original filed specification, a desired trajectory is an input command for controlling and/or testing vibration of the output system (e.g. printer).

McConnell explicitly teaches a Robust Vibration Suppression system for selecting and applying the input commands to the physical system (i.e. inkjet printer) to observe an output response that controls vibration/noise of the physical system (col. 5, lines 15-67). An example is shown in fig. 3, wherein selected input commands are applied to the physical system to determine its robustness/vibration/noise (col. 7, lines 50-65). Input commands as taught by McConnell includes desired level of robustness, noise generation potential, and response time (col. 11, lines 55-65, and sample of input commands are shown in col. 13, lines 45-50, fig. 12). McConnell explicitly illustrated an example of implementing the Robust Vibration Suppression via using an inkjet printer. Input commands are used to drive the stepper motor (e.g. movable element) to observe and/or to reduce noises generated by the stepper motor. An example of such commands include standard ramp and hold command input to drive the inkjet cartridge (col. 22, lines 35-55 and col. 23, lines 1-8) to reduce annoying sounds produced by the printer during operation (col. 23, lines 1-6).

Art Unit: 2624

*Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


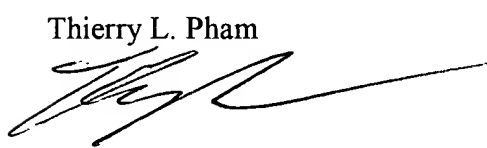
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thierry L. Pham whose telephone number is (571) 272-7439. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571)272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thierry L. Pham



GABRIEL GARCIA  
PRIMARY EXAMINER